

Appln No. 09/782,687  
Response date July 23, 2004  
Reply to Office action of June 1, 2004

REMARKS/ARGUMENTS

Claims 1 - 24 are pending in this application. Claims 1 - 20 have been allowed. Claims 21 - 24 have been rejected under 35 U.S.C. § 103. Claims 22 - 24 depend on independent claim 21.

Claim 21 has been rejected as being obvious over Farjad-Rad et al. (U.S. Patent No. 5,799,048) in view of an article by Van Paemel. The Examiner states that Farjad-Rad et al. "do not disclose all of the details of the charge pump, specifically that the charge pump is not dependent on the data pattern." The Examiner then cites Figures 4 and 5 and page 2491, column 1, line 1 through column 2, line 7 in Van Paemel as teaching the claimed charge pump. Applicant respectfully submits that the combination of Farjad-Rad et al. and Van Paemel does not provide the invention of claim 21.

Claim 21 recites in part:

a charge pump coupled between the half-rate phase detector and the low-pass filter,

wherein the clock signal has a frequency which is half the data rate, and the half-rate phase detector provides a first signal and a second signal, the first signal dependent on the phase difference between the data input signal and the clock signal, and also dependent on the data pattern, the second signal dependent on the data pattern,

wherein the charge pump combines the first signal and the second signal to generate an output signal that is dependent on the phase difference but is not dependent on the data pattern.

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Accordingly, in claim 21 the charge pump combines a signal that depends on phase difference and data pattern with a signal that depends on data pattern to generate a signal the depends on phase difference but does not depend on data pattern.

The citation of Van Paemel by the Examiner does not teach or suggest a charge pump that performs this operation. Moreover, as the Examiner notes, Farjad-Rad et al. does not disclose the claimed charge pump. Accordingly, Applicant respectfully submits that claim 21 is not obvious in view of the cited combination.

Claims 22 - 24 that depend on claim 21 also are patentable over the cited references for the reasons set forth above. In addition, these dependent claims are patentable over these references for the additional limitations that the dependent claims contain.

#### SUMMARY

In view of the above remarks it is submitted that the claims are patentably distinct over the cited references and that all the rejections to the claims have been overcome. Reconsideration and reexamination of the above Application is requested.

Respectfully submitted,  
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